

approximately 700 degrees Celsius. As a result, the titanium in the layer 16 of titanium or titanium alloy proximate to the silicon is converted to titanium silicide (TiSi , TiSi_2 , Ti_3Si_5 or combinations thereof) to form the low resistance device contact 18. For via level applications, the anneal is not required. The via comprises a tungsten or aluminum fill 42 on top of the layer 16 which is formed on top of a conductor (also represented by reference number 17) with an optional TiN layer 40 [therebetween] between layer 16 and the fill material 42.

IN THE CLAIMS

Please substitute the claim set in the appendix entitled Clean Version of Pending Claims for the previously pending claim set. The substitute claim set is intended to reflect amendment of previously pending claims 51, 53-56, 60, and 66. The specific amendments to individual claims are detailed in the following marked up set of claims.

51. (Thrice amended) A via, comprising:

a [single] continuous electrically conductive, titanium alloy layer formed overlying walls and an exposed base layer of a contact hole; [and]

a barrier layer coupled to the titanium alloy layer; and

a fill coupled to the [titanium alloy layer] barrier layer, wherein the fill comprises a metal selected from the group consisting of tungsten and aluminum.

53. (Thrice amended) A via, comprising:

a [single] continuous electrically conductive, titanium alloy layer formed overlying walls and an exposed base layer of a contact hole, wherein the titanium alloy layer comprises titanium and an element selected from the group consisting of zinc, cadmium, mercury, aluminum, gallium, indium, tin, silicon, germanium, lead, arsenic and antimony; [and]

a barrier layer coupled to the titanium alloy layer; and

a fill coupled to the [titanium alloy layer] barrier layer, wherein the fill comprises a metal selected from the group consisting of tungsten and aluminum.

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54. (Amended) The via of claim 51, [further comprising] wherein the barrier layer includes a titanium nitride layer interposed between the titanium alloy layer and the fill.
55. (Thrice amended) A via, comprising:
a [single] continuous electrically conductive, titanium alloy layer formed overlying walls and an exposed base layer of a contact hole;
a fill comprising a metal selected from the group consisting of tungsten and aluminum;
and
a titanium nitride layer interposed between the titanium alloy layer and the fill.
56. A via, comprising:
a [single] continuous electrically conductive, titanium alloy layer formed overlying walls and an exposed base layer of a contact hole, wherein the titanium alloy layer comprises titanium and an element selected from the group consisting of zinc, cadmium, mercury, aluminum, gallium, indium, tin, silicon, germanium, lead, arsenic and antimony;
a fill comprising a metal selected from the group consisting of tungsten and aluminum;
and
a titanium nitride layer interposed between the titanium alloy layer and the fill.
60. (Thrice amended) A via, comprising:
a first layer of a [single] continuous electrically conductive, titanium alloy within a contact opening in an insulating layer, wherein the titanium alloy comprises titanium and an element selected from the group consisting of zinc, cadmium, mercury, aluminum, gallium, indium, tin, silicon, germanium, lead, arsenic and antimony;
a second layer of titanium silicide coupled to the first layer; and
a fill coupled to the titanium alloy layer, wherein the fill comprises a metal selected from the group consisting of tungsten and aluminum.
66. (Thrice amended) A via, comprising:

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